

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: J.G. BEDNORZ ET AL. : Date: March , 1988
Filed: 05/22/87 : Serial No.: 06/053,307
Group Art Unit: 115 : Examiner: Dennis Albrecht
FOR: NEW SUPERCONDUCTIVE COMPOUNDS HAVING HIGH TRANSITION TEMPERATURE,
AND METHODS FOR THEIR USE AND PREPARATION

DECLARATION OF BRADFORD G. ORR
WITH RESPECT TO HIGH T_c SUPERCONDUCTIVITY

Commissioner of Patents and Trademarks
Washington, D. C. 20231

Sir:

I, Bradford G. Orr, hereby declare and say that:

1. I have a PhD in Physics, which I received in October, 1985 from the University of Minnesota. After graduation, I joined the Thomas J. Watson Research Center of IBM Corporation at Yorktown, N.Y., as a Post-doctoral employee. I subsequently left IBM in July, 1987 and joined the University of Michigan, where I am a Professor in the Department of Physics.

2. In the time frame November, 1986, I observed experiments being conducted by Chang C. Tsuei on samples of superconducting La-Ba-Cu-O superconducting ceramic materials. I was told that these samples were obtained from J.G. Bednorz and K.A. Mueller of IBM's Zurich, Switzerland research laboratory. Subsequent to the work of Chang Tsuei, some of this superconducting material was given to me for tunneling microscopy measurements.

3. I observed the superconducting samples described hereinabove being located at the end of a probe and being dipped into a liquid helium dewar for the measurements. Chang Tsuei was measuring resistivity versus temperature of these materials and, by lowering these

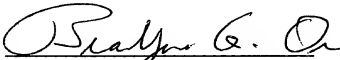
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samples into the dewar the temperature was decreased so that these measurements could be made over a temperature range down to liquid He (4.2K). By establishing a current through the samples and measuring the voltage across two terminals, these resistivity versus temperature measurements were made and plotted by a xy recorder. Tsuei was assisted by Sung Il Park, who also was present during these measurements.

4. During the time frame November - December, 1986, I talked with Richard Greene often, and knew that he was doing heat capacity measurements on these samples. I was also aware of and looked at the data taken by Greene during his specific heat measurements.

5. All acts described hereinabove occurred in the United States.

6. I further declare that all statements made hereinabove are of my own knowledge and are true and that all statements made on information and belief are believed by me to be true. Further, I declare that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of a Patent Application or any patent issuing thereon.



BRADFORD G. ORR

DATE: 3/28/88